

Application Serial No.: 09/917,649
Applicant: Mark J. Feldstein

Docket No.: N.C. 79,856

REMARKS

Reconsideration of the above-identified application is respectfully requested. In the specification, the paragraph beginning on page 2, line 6, has been amended to include material that was previously incorporated by reference. Support for the amendment can be found on page 2, line 8; page 4, line 33; and page 5, lines 1-2. No new matter has been added.

Claims 1-8, 10-16 and 27-29 remain in this application. Claims 9 and 17-26 are canceled. Claims 1-8, 10-16 and 27-28 have been re-presented. Claims 1 and 29 have been amended to more particularly point out and distinctly claim the subject matter that Applicant regards as his invention.

I. Rejection under 35 U.S.C. § 112, first paragraph

Claim 29 was rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner stated that it is unclear what Applicant intends by "... channels in the system may be configured to have minimal cross sectional dimensions such that the selective fluid drawing may or may not be a low Reynolds number fluid flow." [end of page 13]. Thus, the Examiner concluded that "minimal cross-sectional dimensions" is not an accepted term in the art relative to Reynolds numbers and requires explanation. Moreover, the Examiner stated that it was not clear what numerical value distinguishes a low Reynolds number from a "not low" Reynolds number.

With regards to "minimal cross-sectional dimensions," Applicant amended claim 29 to replace "minimal cross-sectional dimensions" with "a characteristic dimension." Moreover,

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Applicant amended the specification to include information from U.S. Patent 5,726,404 to Brody, (Brody) that was previously incorporated by reference, which clearly explains characteristic dimension.

With regards to "low Reynolds number," this is a term of art, as acknowledged by the Examiner on Page 3 of the Office Action. As explained in Brody, which was previously relied upon by the Examiner, the low Reynolds number corresponds to "fluid dynamics [which] are dominated by viscous forces rather than inertial forces." (Brody, col. 3, lines 3-34). Brody also explains that the Reynolds number depends not only on the channel dimension but also on the properties, such as the fluid density and viscosity. (Brody, col. 3, lines 34-44). This is well known, and the fact that the Reynolds number depends on multiple variables does not lead to an absence of written description or indefiniteness. There is nothing indefinite about defining a limitation functionally based on a number of interrelated parameters. M.P.E.P. § 2173.05(g) ("In a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as 'members adapted to be positioned' and 'portions . . . being resiliently dilatable whereby said housing may be slidably positioned' serve to precisely define present structural attributes of interrelated component parts of the claims assembly." (citing *In re Venezia*, 530 F.2d 956, 189 U.S.P.Q. 149 (CCPA 1976))). Based on the incorporated disclosure of Brody, it is clear that one skilled in the art would understand the "non-low Reynolds number" limitation and that the inventor had possession of the claimed invention at the time the application was filed.

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Therefore, Applicant respectfully submits that the specification describes the subject matter of claim 29 in such a way as to reasonably convey to one skilled in the relevant art that the inventor had possession of the claimed invention at the time the application was filed.

II. Rejection under 35 U.S.C. § 112, second paragraph

Claim 29 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner stated that the phrase "minimal cross sectional dimensions such that the selective fluid drawing is not a low Reynolds number fluid flow" is unclear.

For the reasons give above with respect to the lack of adequate written description, Applicant respectfully submits that Claim 29 particularly points out and distinctly claims the subject matter that he regards as his invention. The Examiner has shown no basis to suggest that one skilled in the art would not understand the scope of the claimed invention. In view of, for example, the incorporated disclosure of Brody, the exactly opposite conclusion is warranted (that is, one skilled in the art would understand the "non-low Reynolds number" limitation). The Examiner is correct that, in a hypothetical system, changing from one fluid to another fluid while maintaining all other system properties can change the system's operation from low to high, or high to low, Reynolds number. However, it is not indefinite to define a system based on the Reynolds number operation when one skilled in the art would understand the definition relative to the Reynolds number regime.

The present rejection is analogous to the Federal Circuit's decision that a claimed collapsible wheelchair recited to be "so dimensioned" to fit in an automobile was not indefinite

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since one of ordinary skill would have easily been able to determine the appropriate dimensions. *Orthokinetics Inc. v. Safety Travel Chairs Inc.*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986) (construing "so dimensioned" as definite and stating that the term "is as accurate as the subject matter permits, automobiles being of various sizes"). Here, as in *Orthokinetics*, the invention is defined as accurately as the subject matter permits, since the non-Reynolds flow depends on a number of parameters, including the type of fluid. The present invention is based on well-known principles such that one skilled in the art could readily understand and determine the boundaries of the claims. Therefore, Applicant respectfully submits that claim 29 particularly points out and distinctly claims the subject matter which applicant regards as the invention.

III. Previous Rejection

Since Applicant re-presented claims 1-8, 10-16 and 27-28, the rejections set forth in the Office Action mailed on January 14, 2003 regarding these claims are being addressed in this Amendment. Applicant notes that in the Office Action mailed on January 14, 2003, the Summary stated that claims 1-16 and 21-29 were rejected; however, the Office Action contained no specific rejection for claims 13-16.

IV. Previous Rejection under 35 U.S.C. § 103(a) based on Brody

In the Office Action mailed on January 14, 2003, claims 1-10, 21-22, and 26-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,726,404 to Brody.

Applicants respectfully submit that amended independent claim 1 and dependent claims 2-8, 10-16, and 27-28 are not obvious over Brody. To establish a prima facie case of

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obviousness, all the claim limitations must be taught or suggested by the Prior art. *In re Royka*, 490 F.2d 981 (C.C.P.A. 1979); M.P.E.P. 2143.03.

Brody does not teach or suggest that an "auxiliary fluid reservoir is connected in series through the connection valve to an auxiliary input of at least one of the first and second reservoirs" as recited in amended independent claim 1. All of the examples and discussion in Brody are directed to reservoirs connected in parallel. Further, there is no reasonable basis for predicting that such a serial arrangement would work in Brody, and it is not clear how Brody's pressure conditions (Brody, equation (2), column 3, line 45) can or would apply to such a serial arrangement for reservoirs.

Therefore, Applicant respectfully submits that claims 1-8, 10-16, and 27-28 are not obvious over Brody.

V. Previous Rejection under 35 U.S.C. 103(a) based on Brody in view of Heller or Feldstein

In the Office Action mailed on January 14, 2003, claims 11-12 and 23-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Brody as applied to claims 1-10, 21-22, 26-29 above, and further in view of U.S. Patent 5,849,486 to Heller or Mark J. Feldstein, Joel P. Golden & Frances S. Liger, *Fluorescence Array Biosensor Part 1: Optics and Fluidics*, Micro-Total Analysis Systems 98, pp. 431-434 (1998). According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a waveguide specific binding sensor in the device of Brody in order to detect biological analytes in a microfluidic device as taught by Heller or Feldstein. Heller and Feldstein do not make up for the inadequacies of Brody discussed above in connection with amended claim 1 (from which


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claims 11-12 depend) and, therefore, the hypothetical combination of references does not render obvious the subject matter of claims 11-12.

In view of the foregoing, it is respectfully submitted that this application is ready for allowance. Kindly charge any additional fees due, or credit overpayment of fees, to Deposit Account No. 50-0281.

Respectfully submitted,



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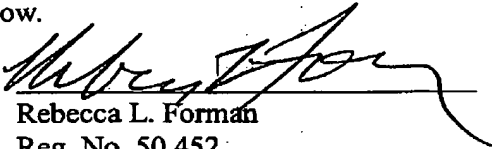
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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

February 27, 2004

Date



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